



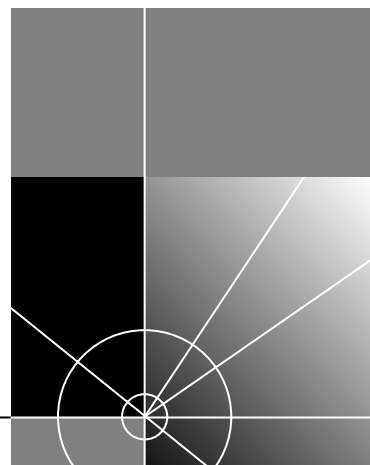
Device View User Guide

CoreBuilder 9000 Enterprise Switch

Transcend Network Control Services Version 5.0.2 for UNIX

<http://www.3com.com/>

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ABOUT THIS GUIDE

About This Guide provides an overview, describes conventions, tells you where to look for specific information, and lists other publications that may be useful.

This version of the *Device View User Guide* describes how to manage the 3Com CoreBuilder 9000 Enterprise Switch using Device View software. This release of Device View also includes support for the CoreBuilder 9400 Gigabit Ethernet Switch.

3Com provides this guide in electronic (PDF) format only. The information in this guide supplements the *Device View User Guide* supplied with Transcend Network Control Services (TNCS) Version 5.0. For information on Device View support of other 3Com hubs and switches, see the *Device View User Guide* included with TNCS v5.0.



If the information in the Release Notes shipped with your product differs from the information in this guide, follow the Release Notes.

For additional information about using Device View to work with 3Com devices on your network, refer to:

- Publications provided with TNCS v5.0 software:
 - *Network Administration Guide* is a guide to setting up network resources and administering your network effectively by configuring network components, managing assets, tracking changes, and managing the security of the network
 - *Network Troubleshooting Guide* is a guide to status monitoring, performance management, and capacity planning
- Online Help which provides more detailed information about how Device View works. Online Help is automatically installed onto your system when you install Device View.

For detailed information on the CoreBuilder 9000 Enterprise Switch and its modules, see the documentation supplied with your hardware, especially the *CoreBuilder 9000 Implementation Guide*.

This guide is intended for network administrators who understand networking technologies and how to integrate networking devices. You should have a working knowledge of:

- Local Area Networking and Internetworking, including:
 - Transmission Control Protocol/Internet Protocol (TCP/IP)
 - Simple Network Management Protocol (SNMP)
- Network management systems
- 3Com devices on your network

You should also be familiar with the interface and features of the Transcend management software you have installed.

Finding Specific Information in This Guide

This table shows the location of specific information in this guide.

If you are looking to...	Turn to...
Learn about Device View, supported devices, and view a management support matrix	Chapter 1
Get started with Device View and find out about the Device View user interface and how to use it to set up 3Com devices on your network	Chapter 2
Find out how Device View helps you to manage hubs, switches, bridge/routers, and remote access routers	Chapter 3
Find out how you can view performance statistics and manage Virtual LANs (VLANs)	Chapter 4

Conventions

Table 1 and Table 2 list conventions that are used throughout this guide.

Table 1 Notice Icons




Icon	Notice Type	Description
	Information note	Information that describes important features or instructions
	Caution	Information that alerts you to potential loss of data or potential damage to an application, system, or device
	Warning	Information that alerts you to potential personal injury

Table 2 Text Conventions

Convention	Description
Screen displays	This typeface represents information as it appears on the screen.
Syntax	<p>The word “syntax” means that you must evaluate the syntax provided and then supply the appropriate values for the placeholders that appear in angle brackets. Example:</p> <p>To enable RIPIIP, use the following syntax:</p> <pre>SETDefault !<port> -RIPIIP CONTrol = Listen</pre> <p>In this example, you must supply a port number for <port>.</p>
Commands	<p>The word “command” means that you must enter the command exactly as shown and then press Return or Enter. Commands appear in bold. Example:</p> <p>To remove the IP address, enter the following command:</p> <pre>SETDefault !0 -IP NETaddr = 0.0.0.0</pre>
The words “enter” and “type”	When you see the word “enter” in this guide, you must type something, and then press Return or Enter. Do not press Return or Enter when an instruction simply says “type.”
Keyboard key names	<p>If you must press two or more keys simultaneously, the key names are linked with a plus sign (+). Example:</p> <p>Press Ctrl+Alt+Del</p>

(continued)

Table 2 Text Conventions (continued)

Convention	Description
Words in <i>italics</i>	Italics are used to: <ul style="list-style-type: none">■ Emphasize a point.■ Denote a new term at the place where it is defined in the text.■ Identify menu names, menu commands, and software button names. Examples: From the <i>Help</i> menu, select <i>Contents</i>. Click <i>OK</i>.

Related Documentation

This guide is complemented by other 3Com documents and comprehensive help systems.

Most user guides and release notes are available in Adobe Acrobat Reader Portable Document Format (PDF) or HTML on the 3Com World Wide Web site:

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Help Systems

Each Transcend application contains a help system that describes how to use all the features of the application. Help includes window descriptions, instructions, conceptual information, and troubleshooting tips for that application.

Year 2000 Compliance

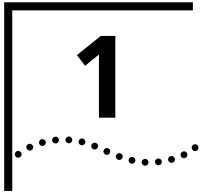
For information on Year 2000 compliance and 3Com products, visit the 3Com Year 2000 Web page:

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<http://www.3com.com/util/enterprise.html#support>



ABOUT DEVICE VIEW

Transcend® Device View enables you to monitor and set up the 3Com hubs, switches, bridge/routers, and remote access devices in your enterprise-wide network.



This version of the Device View User Guide supplements the information provided in the Device View User Guide included in Transcend Network Control Services, v5.0. See “About This Guide” for the scope of this document and other sources of information.

This chapter introduces Device View and summarizes management support for 3Com devices.

- About Device View
- New in This Release
- Management Support Matrix

About Device View

Device View provides an easy-to-use SNMP-based interface for managing the connectivity devices in your network. Transcend Network Control Services customizes the network management platform to add meaningful symbols to the network map, and associate the symbols that represent manageable devices with applications that support them.

When you manage a device, Device View creates an accurate graphical representation of the hardware that enables you to view the status of ports and indicators. You can use the picture to set up device and port parameters, and collect detailed statistics.

The CoreBuilder 9000 16-slot chassis, 8-slot chassis, and 7-slot chassis support frame-based technology with the Gigabit Ethernet Switch Fabric Module, Fast Ethernet switching modules, and Gigabit Ethernet interface modules.

The CoreBuilder 9000 16-slot chassis also supports cell-based technology with the Asynchronous Transfer Mode (ATM) Switch Fabric Module and ATM Interface Modules. However, Device View only supports the frame-based system.

New in This Release

Transcend NCS v5.0.2 for UNIX includes Device View functionality that enables you to manage the CoreBuilder 9000 Enterprise Switch and the CoreBuilder 9400 Gigabit Ethernet Switch. Management support is shown in Table 3

Table 3 Device View Support for the CoreBuilder 9000 Enterprise Switch

Description	Agent Version	3Com Part Number
16-slot chassis		3CB9E16
8-slot chassis		3CB9E8
7-slot chassis		3CB9E7
EME (EME1) Enterprise Management Engine	2.1	3CB9EME
EMC Enterprise Management Controller	2.0	3CB9EMC
24-port Gigabit Ethernet Switch Fabric Module	2.1	3CBFG24
24-port Gigabit Ethernet Switch Fabric Module with additional trunk	2.1	3CBFG24T
2-port 1000BASE SX Interface Module		3CB9LG2MC
2-port 1000BASE LX Interface Module		3CB9LG2SC
9-port 1000BASE-SX Gigabit Ethernet Layer 2 Switching Module	2.1	3CB9LG9MC
10-port 100BASE FX Layer 2 Switching Module	2.1	3CB9LF10MC
20-port 100BASE TX Layer 2 Switching Module	2.1	3CB9LF20R
36-port 10/100BASE TX Layer 2 Switching Module	2.1	3CB9LF36R
36-port 10/100BASE TX Telco Layer 2 Switching Module	2.1	3CB9LF36T
10-port 100BASE FX Layer 3 Switching Module	2.2	3CB9RF10MC
12-port 100BASE TX Layer 3 Switching Module	2.2	3CB9RF12R

Management Support Matrix

This section describes the management features that are available for Small Office and Enterprise Switches, including the CoreBuilder 9000 Enterprise Switch and the CoreBuilder 9400 Gigabit Ethernet Switch.

To find information about other 3Com devices, see the *Device View User Guide* included with TNCS, v5.0.

Table 4 shows the small office and enterprise switches that you can manage with Device View.

Table 4 Small Office and Enterprise Switches

Monitor status	Set up device	Use SuperStack groups	Upgrade agent software	Manage ports	Manage console port	Manage bridging	Create resilient links	Create VLANs	View statistics	Set up traps	Manage security	
✓	✓		✓	✓	✓	✓		✓	✓		✓	CoreBuilder 9000
✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	CoreBuilder 9400
✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	CoreBuilder 2500
✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	CoreBuilder 3500
✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		CoreBuilder 5000 FastModule*
✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	CoreBuilder 6000
✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	LANplex 2016
✓	✓		✓	✓			✓		✓	✓		LinkSwitch 500
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	LinkSwitch 1000
✓	✓		✓	✓			✓		✓	✓		LinkSwitch 1200
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	LinkSwitch 3000
✓	✓			✓	✓		✓		✓	✓	✓	OfficeConnect Switch 140M
✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	SuperStack II Desktop Switch
✓	✓	✓		✓	✓	✓	✓		✓	✓	✓	SuperStack II Switch 610
✓	✓	✓		✓	✓	✓	✓		✓	✓	✓	SuperStack II Switch 630
✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	SuperStack II Switch 1000
✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	SuperStack II Switch 1100
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	SuperStack II Switch 2200

Table 4 Small Office and Enterprise Switches (continued)

Monitor status	Set up device	Use SuperStack groups	Upgrade agent software	Manage ports	Manage console port	Manage bridging	Create resilient links	Create VLANs	View statistics	Set up traps	Manage security	
(continued)												
✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	SuperStack II Switch 3000
✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	SuperStack II Switch 3300
✓	✓	✓		✓		✓		✓	✓	✓	✓	SuperStack II Switch IP 3800
✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	SuperStack II Switch 3900
✓	✓	✓		✓		✓		✓	✓	✓		SuperStack II Switch 9000 SX
✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	SuperStack II Switch 9300

* Includes CoreBuilder 5000 Token Ring FastModules. CoreBuilder 5000 SwitchModules are managed through the CoreBuilder 5000 SwitchModule Manager application. See Using Online Help in Chapter 2 for more information on CoreBuilder 5000 SwitchModule Manager or see the online Help.

In addition to the management functions shown in Table 4, you can also use Device View to perform the following tasks:

- Manage power supplies (CoreBuilder 9000 Switch)
- Enable 802.1Q tagging (CoreBuilder 9000 Switch)
- Set up roving analysis port (CoreBuilder 9000 Switch and CoreBuilder 9400 Switch)
- Monitor port trunking (CoreBuilder 9000 Switch and CoreBuilder 9400 Switch)
- Monitor backplane ports (CoreBuilder 9000 Switch)

2

USING DEVICE VIEW

This chapter describes the Device View interface and explains how to run the application and use it to set up manageable devices.



This version of the Device View User Guide supplements the information provided in the Device View User Guide included in Transcend Network Control Services, v5.0. See “About This Guide” for the scope of this document and other sources of information.

This chapter contains:

- Preparing Devices for Management
- Starting Device View
- Viewing Network Devices
- Managing Media, Modules, Segments, and Ports
- Viewing and Changing Settings
- Using Online Help

Preparing Devices for Management

The ability to set up devices from the SNMP management station is an important part of your configuration management strategy. To prepare to manage devices on your network, you need to perform the following key tasks:

- 1 Discover devices and create network maps — The management system organizes your network into a hierarchical series of maps and submaps. This structured, hierarchical approach provides a high-level submap that represents your entire network, and detailed views of portions of the network, which helps you analyze and troubleshoot your network. Each map contains objects and symbols that represent parts of your network. Map symbols represent network resources as graphical icons, and relate to a set of basic management information that is stored in the management system's object database.
- 2 Set up SNMP parameters — The management station uses SNMP to *get* and *set* management information on the agent. To make sure you can manage devices on your network, you need to set the SNMP parameters that affect how the system communicates with devices.

Whenever a management application requests information from an SNMP agent, it provides a *community name*. The community name is a text string that acts as a password, and is used to authenticate every packet that is sent from the management application and the agent.

The management station must use the same community name that is configured on the agent. Setting the community name determines your level of management control over the device.

Some advanced management platforms enable you to set global values for other SNMP parameters, such as time-out and retry values, polling intervals, and SNMP proxy agents, that affect the way you manage devices.



For the CoreBuilder 9000 Enterprise Switch, you must configure the EME with certain parameters before you access the Administration Console of any switch fabric module or interface module, and before you access the system through an external Simple Network Management Protocol (SNMP) application. See the CoreBuilder 9000 Enterprise Management Engine User Guide for more information.

- 3 Start polling device status — Map symbols can show the status of the managed object, so you can use your network map to quickly find out the state of the resources that make up your network.

- 4 Define groups and manage devices — To help you organize managed devices, Device View enables you to create SuperStack groups. You can then select one symbol that represents the devices, and manage all the devices in a single window.
- 5 Set up IP address of management station — Each device needs to be set up with the IP address of the management station in order to send traps to it.

Preparing the Management Platform

To allow the management platform to communicate properly with the managed devices, you need to set up the read-write community string on the management station. For detailed instructions on performing this task, refer to the network management documentation.

Starting Device View

You can launch Device View from a command line or from Transcend Central.

Integration of Device View with your management platform is performed automatically when you install Transcend Network Control Services.

Community Strings

Community strings are stored in two locations: your network management platform and the Transcend database. Device View uses the community strings stored in the Transcend database. It is important that the community string information be identical in both locations for a particular device to maintain communication between Transcend applications and the device.

You can use Transcend Central to import device information (including community strings) from the network management platform to the Transcend database. However, community string changes made in Transcend Central are not propagated to the network management platform. Therefore, if you want to change the community string for a device, reset the string in the network management platform and then change the string in the Transcend database by using Transcend Central to re-import the device.

Using the Command Line

At the prompt, enter the command:

```
/usr/3Com/dv/bin/dv hostname
```

where ***hostname*** is the hostname or IP address of the device.

If you add the name of the directory containing the Device View application to your path, you can launch the Device View simply by entering:

```
dv hostname
```

If the device recognizes the community string and can be reached on the network, Device View displays the device. Otherwise, enter:

```
dv -c community_string -device hostname
```

Ensure the device's community string is correctly set up for the management platform.

Device View displays a graphical representation of the device. You can start multiple sessions of Device View to see details of several devices on screen at the same time.

Using Transcend Central

Device View can be started from Transcend Central.

To start Device View:

- 1 Select a device or a SuperStack group and click the right mouse button.
For a CoreBuilder 9000 Switch, expand the CoreBuilder 9000 Enclosure group, then select the CoreBuilder 9000 device and click the right mouse button.
- 2 From the shortcut menu, select *Tools*, then choose *Device View*.

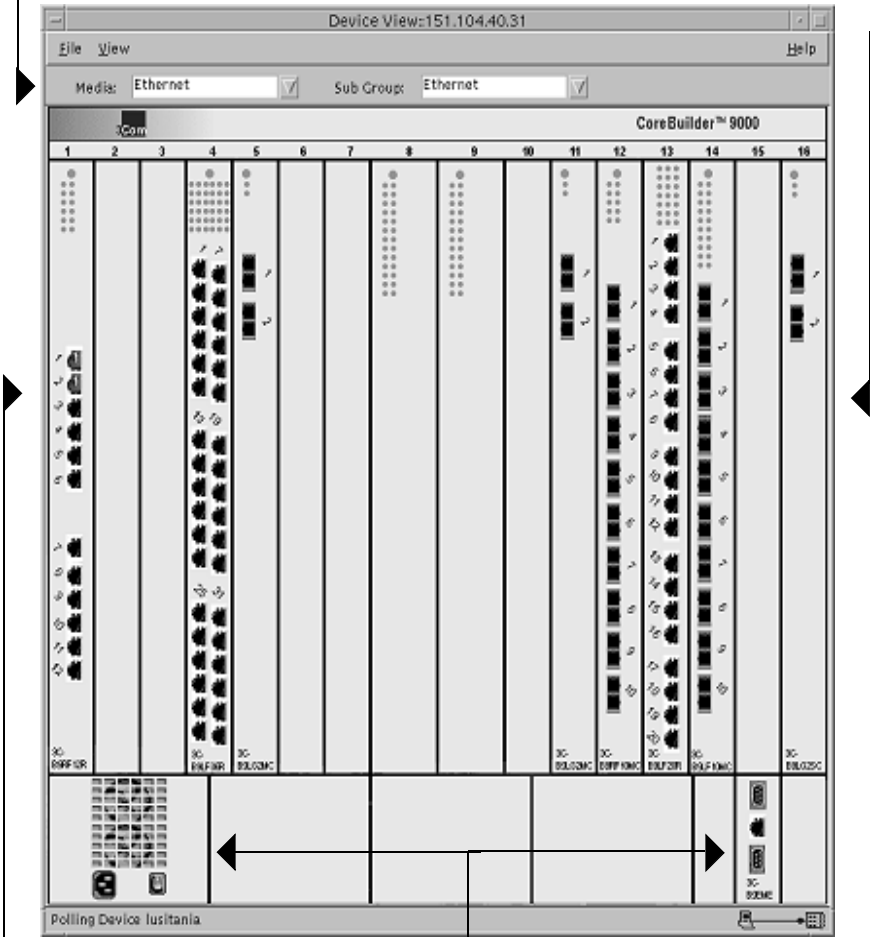
Viewing Network Devices

When you choose to manage a device, Device View presents a bitmap picture of the front panel of the managed device that reflects the hardware configuration and the condition of status indicators, ports, and modules.

Figure 1 shows the Device View representation (device mimic) of a 16-slot CoreBuilder 9000 Switch. The title bar of the Device View window displays the name or IP address of the device you are managing. At the bottom of the window, the status bar provides messages and shows the direction of communication between the management station and the device. To update the display, click *Refresh* on the View menu.

Media and Sub Group — Enables you to highlight associated ports.

Modules — Select a module with the left mouse button, and click the right mouse button to access a shortcut menu.



Ports — Select one or more ports with the left mouse button, and click the right mouse button to access a shortcut menu.

Power Supply/Fan (left) — Color indicates status.
EME (right) — Enterprise Management Engine

Figure 1 Managing a CoreBuilder 9000 Switch

Managing Media, Modules, Segments, and Ports

Device View enables you to set up all aspects of the devices you manage.

You can select and work with:

- Devices
- Console ports
- Modules
- Transceivers
- Segments
- Ports
- Virtual LANs
- Trunks

In many cases, you can choose multiple objects and set them up at the same time.

You select an object in Device View by clicking on it, then select other objects by either dragging over them, or clicking the first object and then holding down Ctrl and choosing the other objects you want to select. When you select objects, Device View highlights them. You can deselect objects by clicking on them again.



When you highlight a port, Device View highlights LEDs and other status indicators associated with the port, to make it easier to check port status.

When you choose to set up multiple devices or ports, Device View checks the management features that the devices support. If some of your changes cannot be made, because one or more devices do not support them, Device View provides you with a detailed summary of the changes that were applied, and those that were not applicable.

Using Media Selection Lists

Device View also provides two media selection lists called *Media* and *Sub Group* which help you to choose the features you want to manage. For example, this makes it easy to work with all Fast Ethernet ports, find out which ports belong to VLAN 2, or choose all the ports that are connected to a cascaded segment in a stack of PS Hub devices as in Figure 2.

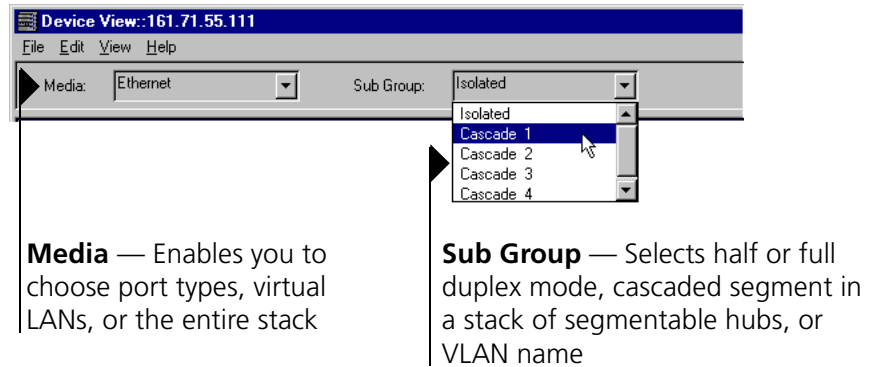


Figure 2 Filtering with the Media Selection Bar

To use the media selection lists:

- 1 Choose your selection in the *Media* list box.

Typical media selections are:

- *Ethernet*, *Fast Ethernet*, or *Gigabit Ethernet*, which highlight port interfaces according to port speed
- *Console*, which highlights all console ports
- *Vlan*, which enables you to highlight ports that belong to the virtual LAN you choose in the Sub Group list
- *SuperStack*, which highlights all the devices in a stack

When you make your selection, the options in the *Sub Group* list box change to reflect the media you want to work with. For example, the sub group may be *Half Duplex* or *Full Duplex*, the number of a cascaded segment, or the number of a VLAN.

- 2 Choose your selection in the *Sub Group* list box.

Devices or ports matching your selection are highlighted.

- 3 Manage the selection by clicking the right mouse button and choosing a command from a shortcut menu.

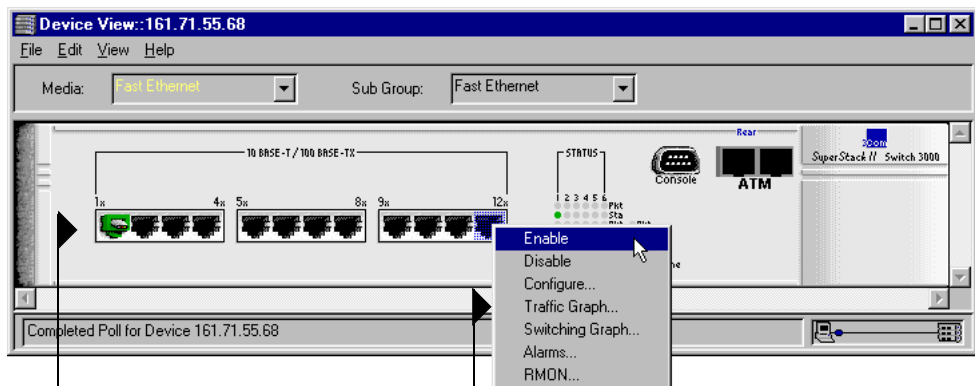
Viewing and Changing Settings

You can access management information about devices, segments, ports, and virtual LANs by highlighting the feature you want to work with and clicking the right mouse button to access a shortcut menu. For modular chassis such as the CoreBuilder 9000 Switch, you can also highlight the entire chassis or a module. The shortcut menu you see depends on the element you have selected.



The shortcut menu does not appear for CoreBuilder 5000 and ONline devices. Instead, you click and hold the right mouse button on the module or port you want to manage, move the mouse pointer over a popup module description, and release the mouse button.

To enable or disable a port interface, highlight the port and select *Enable* or *Disable* from the shortcut menu.



Ports — Select one or more ports that you want to work with, either by clicking them or using the *Media* and *Sub Group* filters.

Shortcut menu — Right-click to access the menu and choose to *Enable*, *Disable*, *Configure*, or view performance graphs.

Figure 3 Selecting an Ethernet Port

The shortcut menu displays a series of commands that relate to the feature you select. Clicking *Configure* enables you to set up the feature using a notebook-style interface that divides management information into a series of sections within the same window. Within each section, tabbed pages group the settings you can configure. When you select a

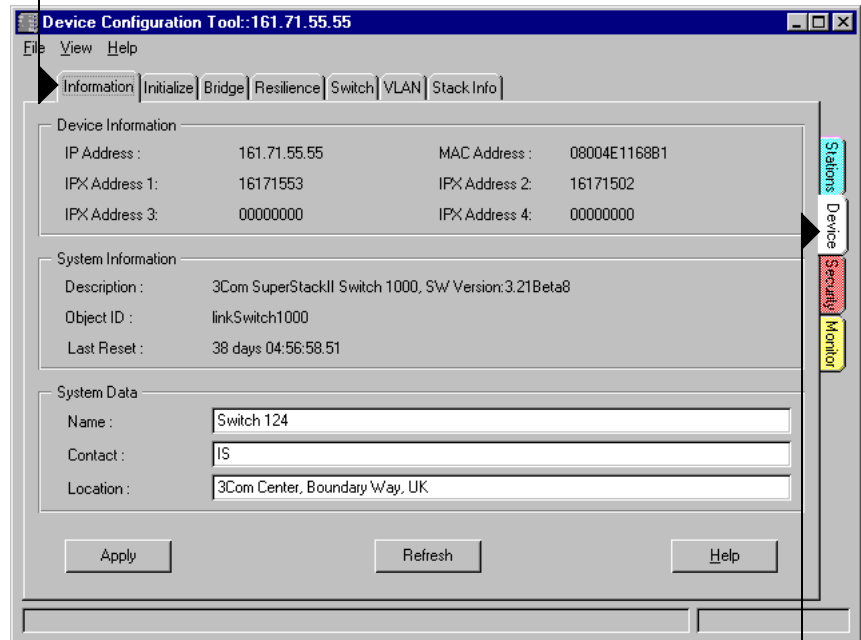
different section, the tab labels at the top of the page change automatically to show which options are available within that section.



The interface for CoreBuilder 5000 and ONline devices uses a single tabbed page for most module and port configuration forms.

Device View provides dialog boxes that enable you to *read* and *write* management information. When you want to update information in a dialog box, click *Refresh* to cause Device View to read new information from the device.

Available tabs for the Device section



Available sections

Figure 4 Using Tabs in the Notebook Interface



Tab order and position can vary for different devices. Also, some tabs are specific to particular devices.

When you change management settings in Device View, always make sure you click *Apply* to write the changes to the device you are managing. Alternatively, to discard your changes and close the dialog box, click on the *Exit* command on the *File* menu.

Using Online Help

This guide introduces you to using Device View to manage 3Com enterprise network equipment in your network. For detailed information about the settings that you can read and set, what fields and controls mean, and how you should use them, refer to the comprehensive online help that is automatically placed on your system when you install Device View.

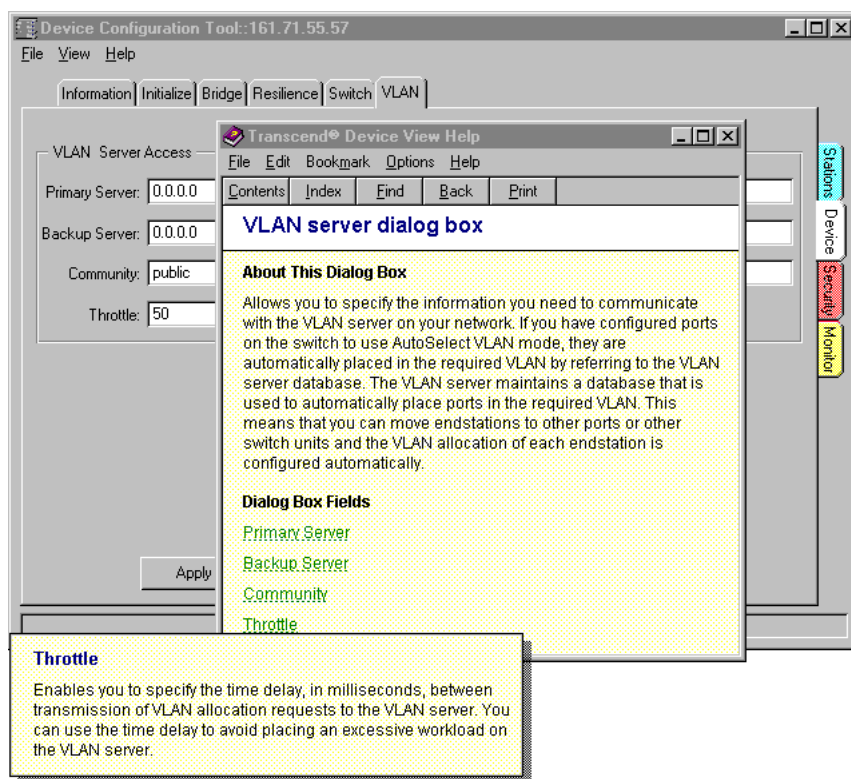


Figure 5 Device View Help for Security Settings

You can access help for the application you are using in different ways. Device View Help is context-sensitive, which means that the help system produces information that relates to the management settings you are using when you click the *Help* button.

To access Device View help, either click on a *Help* button in a window or dialog box to access help on the tasks you can perform, or use the Help menu to use the Contents page or index to locate the information you want to find.

3

MANAGING DEVICES

Device View provides management settings that are appropriate to the feature set of the managed resource. For example, you may need to set up cascaded segments on segmentable hubs, virtual LANs (VLANs) on switches, or ISDN bridging on remote access devices. Device View customizes the interface to match the needs of the systems you are managing.

This chapter describes management settings that Device View provides for hubs and switches, high-function switches, remote access devices and routers, and power systems.



This version of the Device View User Guide supplements the information provided in the Device View User Guide included in Transcend Network Control Services, v5.0. See “About This Guide” for the scope of this document and other sources of information.

This chapter contains:

- Managing CoreBuilder 9000 Switches
- Managing Power Systems

Managing CoreBuilder 9000 Switches

This section describes the management features that Device View provides for CoreBuilder 9000 Switches in your network.

This section contains:

- Chassis Management
- Module Management
- Ethernet Port Setup

Chassis Management To manage a CoreBuilder 9000 Switch:

- 1 View the front of the chassis by starting Device View.
- 2 Highlight the entire chassis and click the right mouse button. Device View displays a shortcut menu with the following options: *Configure*, *IP Config*, and *Inventory*.
 - a If you select *Configure*, Device View displays the *Device* section, which includes the *Information*, *Backplane Connections*, *Reset*, and *Trunk Setup* tabbed pages. Refer to Device Settings for information on these pages.
 - b If you select *IP Config*, Device View displays the *IP Configuration* section, which includes the *ARP Cache*, *Interfaces*, and *Routes* tabbed pages. Refer to IP Configuration Settings for information on these pages (valid for Layer 3 modules only).
 - c If you select *Inventory*, Device View displays the *Chassis* section, which includes the *PSU*, *Fan Status*, *Modules*, *Temperature*, and *Fabric* tabbed pages. Refer to Chassis Settings information on these pages.
- 3 Click *Apply* after making changes to any settings.

Device Settings

The *Device* section contains the following tabbed pages:

- Information — Provides detailed information about a device (for example, the IP address, MAC address, and IPX addresses) and enables you to enter a name, location, and contact.
- Reset— Allows you to reboot your device. Rebooting the device disconnects any rlogin and telnet sessions. It also temporarily disrupts your ability to poll the device using Transcend applications, and the device shows up as unreachable.

- **Backplane Connections** — Displays a table showing the current backplane connections (switch fabric module to interface module) and the status of each connection.
- **Trunk Setup** — Displays a table showing the trunks, and member ports, currently defined on the device.

IP Configuration Settings

The *IP Configuration* section contains read-only pages, which are valid for Layer 3 modules only. To create, edit, or delete IP configuration setting, select the appropriate Layer 3 module in your CoreBuilder 9000 Switch. The *IP Configuration* section includes the following tabbed pages:

- **ARP Cache** — Allows you to view the Address Resolution Protocol (ARP) cache. The ARP cache is a table of IP addresses learned by the device and their corresponding MAC addresses.
- **Interfaces** — Allows you to view the IP interfaces defined on the CoreBuilder 9000 Switch. You define interfaces to establish the relationship between the ports on your device and the subnetworks in your IP network. IP interfaces are used for managing the device and to help route packets on your network. You can have up to 32 IP interfaces for management for each device.
- **Routes** — Allows you to view the IP routes defined on the CoreBuilder 9000 Switch. Each device maintains a table of routes to other IP network, subnetworks, and hosts. You can either make static entries in this table or configure the device using the Routing Information Protocol (RIP).

When configuring the default route, neither a destination address or network mask are required. If the default type is selected the first two fields will be disabled. Only one default route can exist, so if one is already defined, it should not be possible to select the default type.

Chassis Settings

The *Chassis* section contains the following tabbed pages:

- **PSU** — Provides detailed information about the power supplies installed in the chassis.
- **Fan Status** — Allows you to manage and view information about the fan units installed in the chassis.
- **Modules** — Provides detailed information about the modules installed in the chassis.

- Temperature — Allows you to view temperature information for a chassis.
- Fabric — Allows you to view information for the Gigabit Ethernet (GEN) Switch Fabric Module (or modules) operating in the chassis.

Module Management To manage CoreBuilder 9000 Switch modules:

- 1 View the front of the chassis by starting Device View.
 - 2 Highlight the module and click the right mouse button. Device View displays a shortcut menu. The menu options include the following:
 - Configure Module* and *Configure Bridge* (all modules), and *RAP* and *IP Config* (Layer 3 modules only).
 - a If you select *Configure Module*, Device View displays the *Config Module* section, which includes the *Reset*, *VLANs*, and *Backplane Connections* (switch fabric module only) tabbed pages. Refer to Module Settings for information on these pages.
 - b If you select *Configure Bridge*, Device View displays the *Bridge* section, which includes the *General* and *Spanning Tree* tabbed pages. Refer to Bridge Settings for information on these pages.
 - c If you select *RAP*, Device View displays the *RAP* (Roving Analysis Port) section, which includes the *Analyzer Setup* and *Monitor Setup* tabbed pages. Refer to RAP Settings information on these pages.
 - d If you select *IP Config*, Device View displays the *IP Configuration* section, which includes the *ARP Cache*, *Interfaces*, and *Routes* tabbed pages. Refer to IP Configuration Settings for information on these pages.
- 3 Click *Apply* after making changes to any settings.

Module Settings

The *Config Module* section contains the following tabbed pages:

- Reset— Allows you to reboot a module. Rebooting a module disconnects any rlogin and telnet. It also temporarily disrupts your ability to poll the module using Transcend applications, and the module shows up as unreachable.
- VLANs — Show the VLANs currently defined on the module and enables you to create new VLANs, or modify or delete existing VLANs.

- **Backplane Connections** — For switch fabric modules, displays a table showing the current backplane connections (switch fabric module to interface module) and the status of each connection.

Bridge Settings

The *Bridge* section contains the following settings:

- **General** — Allows you to configure standard bridge parameters.
- **Spanning Tree** — Allows you to view and configure spanning tree parameters such as the bridge priority, hello time, maximum age, and forward delay.

RAP Settings

The *RAP* (Roving Analysis Port) section contains the following settings:

- **Monitor Setup** — Allows you to set up the port whose traffic you want to analyze. The monitor port mirrors incoming and outgoing traffic to the analyzer port for analysis.
- **Analyzer Setup** — Allows you to set up the destination port that will receive and process monitored traffic. The analyzer is the location where RMON processing occurs.

Roving analysis enables you to monitor port traffic for network management purposes. Device View allows you to choose any network segment that is attached to a supported device and monitor its activity using a network analyzer (also called a "probe").

You can monitor a port to:

- Analyze traffic loads on each segment so that you can continually optimize your network loads by moving network segments
- Troubleshoot network problems (for example, to find out why a particular segment has so much traffic.)

When you set up roving analysis, the system copies port data and forwards it to the port on which the network analyzer is attached - without disrupting the regular processing of the packets.

IP Configuration Settings

The *IP Configuration* section contains the following settings:

- **ARP Cache** — Allows you to remove or flush the Address Resolution Protocol (ARP) cache. The ARP cache is a table of IP addresses learned by the device and their corresponding MAC addresses.
- **Interfaces** — Allows you to create, edit, and delete IP interfaces. You define interfaces to establish the relationship between the ports on your device and the subnetworks in your IP network. IP interfaces are used for managing the device and to help route packets on your network. You can have up to 32 IP interfaces for management for each device.
- **Routes** — Allows you to create a new static or default route or edit existing ones. Each device maintains a table of routes to other IP network, subnetworks, and hosts. You can either make static entries in this table or configure the device using the Routing Information Protocol (RIP).

When configuring the default route, neither a destination address or network mask are required. If the default type is selected the first two fields will be disabled. Only one default route can exist, so if one is already defined, it should not be possible to select the default type.

Ethernet Port Setup

The Device View window shows a bitmap representation (device mimic) of the front of the device. The mimic displays installed modules (for modular switches) and all front panel ports. Connectors such as an AUI port or transceiver module that physically may be on the rear of the device are shown in this view. However, CoreBuilder 9000 Switch backplane ports are not displayed.

To set up switch ports:

- 1 View the front panel by starting Device View.
- 2 Highlight one or more ports, click the right mouse button, and select *Configure* on the shortcut menu.

Device View provides you with the *Ports* section which contains *Ethernet*, *Spanning Tree*, and *VLAN* tabs. Refer to the following sections to find out more about these groups of settings.

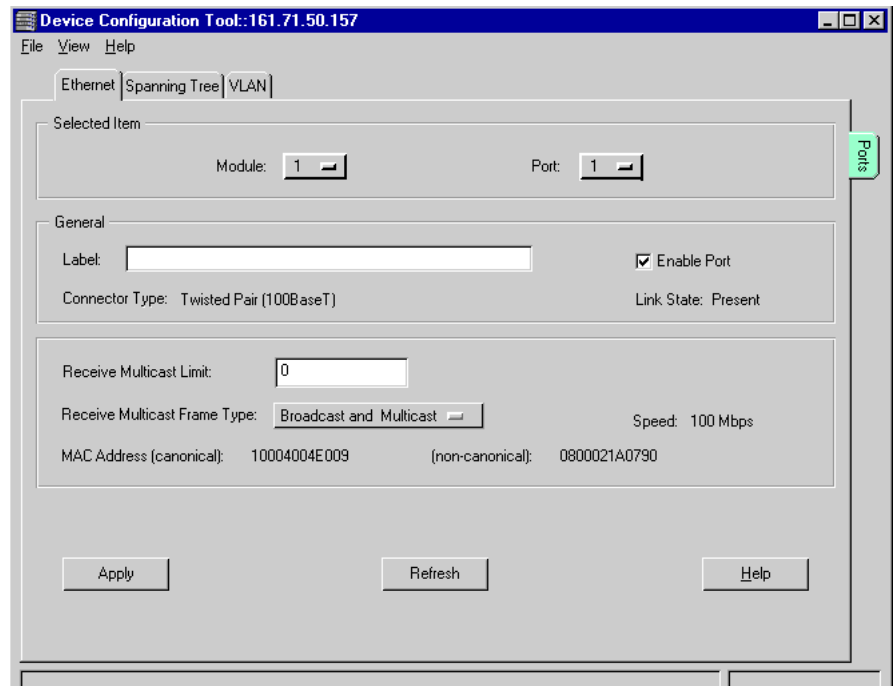


Figure 6 Managing Ethernet Ports on High-Function Switches

3 Click *Apply* after making changes to any settings.

The *Ports* section contains the following settings:

- Ethernet — Enables you to enable, disable, and configure Ethernet ports on a device.
- Spanning Tree — Allows you to view and configure spanning tree parameters such as the path cost and port priority.
- VLAN — Allows you to view and configure the identifiers and names of the VLANs to which a port belongs.

Managing Power Systems

This section describes special power management features for the CoreBuilder 9000 Switch. For a complete description of power management in the CoreBuilder 9000 Switch, see the *CoreBuilder 9000 Enterprise Management Engine User Guide*.

Managing the CoreBuilder 9000 Switch Power Supply

Device View provides you with the following power management features for the CoreBuilder 9000 Switch:

- You can find out the status of power supplies and fan units, and temperature data for the chassis.
- You can set Admin Status to Fault Tolerant or Non-Fault Tolerant mode.
- You can enable or disable Overheat Power Down mode.
- You can set the Power Class.
- You can enable or disable the Power State

To manage a CoreBuilder 9000 Switch power supply:

- 1 Select the CoreBuilder 9000 Switch chassis.
- 2 Click the right mouse button.
- 3 From the shortcut menu, select *Inventory*.
- 4 Select the *PSU*, *Fan Status*, or *Temperature* tab.

The Fan Status and Temperature dialog boxes are informational. The PSU dialog box provides status information, enables you to set Admin Status and Overheat Power Down mode, and provides access to the Modify PSU dialog box. The Modify PSU dialog box enables you to change the Power Class setting and the Power State mode.

Admin Status

You can set Admin Status to Fault Tolerant or Non-Fault Tolerant mode.

Power non-fault-tolerant is:

- A mode in which 100 percent of the power that can be allocated to modules is available to them (no power is held in reserve).
- The default mode for power supplies as shipped.

While the chassis is running in power non-fault-tolerant mode, the amount of power that is available to modules is determined only by the number of power supplies that are installed. If a power supply fails while the chassis is running in non-fault-tolerant mode:

- Installed modules continue to operate without interruption if the output of the remaining power supplies is sufficient to provide adequate power to all installed modules.

- The EME may shut down selected interface modules in an attempt to bring installed module power consumption under the now-reduced power budget.

In *power fault-tolerant* mode, power equivalent to one power supply is held in reserve. This reserve power is not available to installed modules unless a power supply fails, or if you switch the power mode from power fault-tolerant mode to power non-fault-tolerant mode.

While the chassis is running in power fault-tolerant mode:

- All installed power supplies are functioning and contributing power to the chassis and modules. No single power supply is a dedicated standby power supply. Rather, a factory-defined power limit ensures that power that is equivalent to at least one power supply is available to replace power lost if a power supply fails.
- The amount of power that installed modules require must not be greater than the number of installed power supplies, minus one (n-1). When you reserve power that is equivalent to one power supply in power fault-tolerant mode, the failure of a single power supply has no impact on installed modules that are already powered on.

If a power supply fails while the chassis is running in fault-tolerant mode:

- The EME automatically disables fault-tolerant mode.
- Power formerly reserved is made available to modules to prevent them from powering off.
- All modules that had power before the power supply failure continue to receive power without interruption.
- Upon power supply recovery (or replacement), the EME automatically reenables fault-tolerant mode.

Overheat Power Down Mode

An overheat condition exists when one of the chassis temperature sensors detects a chassis internal operating temperature that exceeds a predefined threshold. The allowable ambient temperature operating range is 0 °C through 50 °C (32 °F through 122 °F). The default threshold setting is fixed at an upper limit of 60 °C (140 °F) or higher to prevent module damage.

The following events occur during an overheat condition:

- 1 The Master EME character display shows the word `TEMP`
- 2 If an SNMP agent is present in the chassis, power management informs the SNMP agent of the overheat condition.
- 3 A 1-minute delay is provided, during which the Master EME and external management entities are notified of the overheat condition.
- 4 Approximately 1 minute later, the EME initiates a power-off strategy to all CoreBuilder 9000 modules installed in the overheat management areas where the overheat condition was detected.
- 5 The overheat indication `TEMP` stops when the chassis internal operating temperature falls below the temperature threshold and stays there for 15 minutes.

The EME does *not* power off modules that occupy slots outside of affected overheat management areas. This overheat power-off strategy is based on the power class setting and slot location of each installed switch fabric module and interface module.

The two overheat auto-power-down modes are:

- **Enable** — Causes slots to power off automatically when the chassis overheats.
- **Disable** — (the default) Causes the EME to send notification to network management applications, but the chassis keeps operating.

Power Class

A *power class setting* is a value in the range of 1 through 10 that is assigned to each module. The highest setting is 10. The EME uses the power class settings to manage power among the modules in the chassis, and to determine the order in which it powers on and powers off installed modules.

Each CoreBuilder 9000 Switch module is shipped with a default power class setting:

Module	Default Power Class Setting
EME	10
EMC	10
Interface Module	3
Switch Fabric Module	9

The EME cannot automatically power off a module that is assigned a power class setting of 10.

For example, if a power supply failure causes a power deficit (or if a chassis overheat condition develops), a module that is assigned a power class setting of 10 continues to run until you order it to power off. Under some conditions (such as an extended overheat condition), chassis or module hardware damage may result.



To ensure that the EME can make all power management decisions automatically, do not assign a power class setting of 10 to any switch fabric module or interface module unless it is absolutely necessary.

Power State

You can enable or disable power to any slot in your CoreBuilder 9000 chassis. The EME allocates power to a module in the disabled slot. All slots are enabled by default.

If there is:

- *Sufficient power* available to meet the requirements of the new module, the EME enables power to the specified slot and reduces the power budget by the amount of power that module consumes.
- *Insufficient power* to meet the requirements of the new module, the module remains in power-pending state until sufficient power becomes available.

A CoreBuilder 9000 module that was powered off due to a lack of sufficient available power is in *power pending state*. The module will be automatically powered on again by the EME when sufficient power becomes available.

4

ADVANCED MANAGEMENT TASKS

Device View provides you with advanced management capabilities for devices that have special features. For example, you can set up resilient links to safeguard important inter-switch or backbone connections, use the Transcend Load Balancing Tool to optimize the efficiency of PS Hub segments, and view graphical performance statistics.



This version of the Device View User Guide supplements the information provided in the Device View User Guide included in Transcend Network Control Services, v5.0. See “About This Guide” for the scope of this document and other sources of information.

This chapter contains:

- Viewing Performance Statistics
- Managing Virtual LANs

Viewing Performance Statistics

Device View enables you to display a variety of activity and error statistics at device, segment, and port level. The statistics that are available depend on the type of port or device that you select.

You can view statistics for the following 3Com devices:

- CoreBuilder 2500 High-Function Switch
- CoreBuilder 3500 High-Function Switch
- CoreBuilder 9000 Enterprise Switch
- CoreBuilder 9400 Gigabit Ethernet Switch
- SuperStack II Switch 3900
- SuperStack II Switch 9300
- LANplex 2016 Switch

To display statistics for one of these devices:

- 1 Select a port.
- 2 From the shortcut menu, select one of the statistics options.

The available options depend on the type of port selected but include:

- Port statistics — Shows graphs for inbound and outbound counters (bytes and packets) that help you determine port traffic.
- Bridge statistics — Show graphs for bridge port utilization counters, such as Spanning Tree frames, multicast limit exceeds, and same segment discards.
- Switch statistics — Shows the ratio of forwarded to filtered packets. This graph shows the effectiveness of switching in managing the network traffic.
- Error statistics — Shows graphs for various error statistics depending on the type of port selected (ethernet or FDDI MAC).
- Ring Utilization statistics — Shows utilization statistics for FDDI MAC ports.
- RMON statistics — Launches LANsentry® Manager, which consists of an integrated set of applications that you can use to display and explore the real-time and historical data captured by RMON-compliant devices on the network. You can also configure those devices from LANsentry Manager.

Managing Virtual LANs

Transcend Network Management Software provides an easy-to-understand graphical interface for setting up and managing virtual LANs (VLANs), allowing network managers to view VLANs within the network, find out about particular VLAN segments, move individuals or groups between segments, and map VLANs to physical device ports.



For comprehensive information about VLAN technology and 3Com enterprise network equipment, refer to the Network Administration Guide provided with your Transcend software.

For information on CoreBuilder 3500, CoreBuilder 9000, CoreBuilder 9400, SuperStack II Switch 3900, and SuperStack II Switch 9300 VLANs, see the Implementation Guide provided on the Documentation CDROM shipped with each device. The procedures and forms for managing VLANs on these devices differ from other 3Com devices. See the Device View online Help to resolve these differences.

When you set up virtual LANs on the devices you are managing, you need to know the kind of devices you are working with, and the kinds of VLAN strategy you plan to implement.

Device View enables you to set up VLANs with devices in Table 6-1.

Table 6-1 Virtual LAN Support

Port-Based VLANs	Protocol-Based VLANs	Network-Based VLANs	AutoSelect VLANs	IEEE 802.1Q VLANs	Policy Based / AutoCast	
✓					✓	CoreBuilder 2500
✓	✓	✓		✓	✓	CoreBuilder 3500
✓				✓	✓	CoreBuilder 5000
✓					✓	CoreBuilder 6000
✓	✓	✓		✓		CoreBuilder 9000
✓				✓		CoreBuilder 9400
✓					✓	LANplex 2500

Table 6-1 Virtual LAN Support

Port-Based VLANs	Protocol-Based VLANs	Network-Based VLANs	AutoSelect VLANs	IEEE 802.1Q VLANs	Policy Based / AutoCast	
✓					✓	LANplex 6000
✓			✓			SuperStack II Desktop Switch
✓			✓			SuperStack II Switch 1000
✓			✓	✓		SuperStack II Switch 1100
✓			✓			SuperStack II Switch 3000
✓			✓	✓		SuperStack II Switch 3300
✓				✓		SuperStack II Switch 3900
✓				✓		SuperStack II Switch 9300
				✓		SuperStack II Switch IP 3800
				✓		SuperStack II Switch 9000 SX



AutoSelect VLANs are supported by agent software version 2.1 and version 3.1 and above.



The kinds of VLAN you can implement are determined by VLAN support in the devices you manage. For modular hubs, the type of VLAN you can implement depends on the installed switching module. For more information, refer to the information provided with the device.

This section describes how Device View enables you to set up different kinds of VLANs.

Note the following device-specific considerations:

- CoreBuilder 5000 SwitchModules are managed by the CoreBuilder 5000 SwitchModule Manager application. See the Device View online Help for information on starting and using CoreBuilder 5000 SwitchModule Manager.
- The procedures and forms for managing VLANs on CoreBuilder 2500, CoreBuilder 3500, CoreBuilder 9000, CoreBuilder 9400, SuperStack II

Switch 3900, and SuperStack II Switch 9300 devices differ from other 3Com devices. See the Device View online Help to resolve these differences.

For the CoreBuilder 9000 Switch, 3Com strongly recommends that you read the *CoreBuilder 9000 Implementation Guide* for information on VLANs and other features.



The kinds of VLAN you can implement are determined by VLAN support in the devices you manage. For modular hubs, the type of VLAN you can implement depends on the installed switching module. For more information, refer to the information provided with the device.

VLANs on the CoreBuilder 9000

Your system offers a collection of interface modules that pass traffic to one another using a central switch called the Gigabit Ethernet (GEN) Switch Fabric Module. This switch fabric module, a 24-port Layer 2 switching module, controls the Ethernet traffic associated with its interface modules. The switch fabric module supports the following modules:

- **Layer 2 switching modules** — Perform Layer 2 functions. They handle bridging and support port-based VLANs only. Available Ethernet Layer 2 modules include the 10-port 100BASE-FX Fast Ethernet Layer 2 switching module, the 20-port 10/100BASE-TX Fast Ethernet Layer 2 Switching Module, and the 36-port 10/100BASE-TX Fast Ethernet Layer 2 Switching Module. These modules have two backplane ports; the lower-numbered backplane port is enabled and can be configured.
- **Layer 3 switching modules** — Perform Layer 3 as well as Layer 2 functions. They handle bridging and routing, and support port-based, protocol-based, and network-based VLANs. Available Ethernet Layer 3 modules include the 10-port 100BASE-FX Fast Ethernet Layer 3 switching module and the 12-port 10/100BASE-TX Fast Ethernet Layer 3 Switching Module. These modules have only one backplane port and typically reside in the higher-numbered chassis slots (slots 13 through 16) that have only one port connection to the switch fabric module.
- **Gigabit Ethernet (GEN) Interface modules** — These 2-port Gigabit Ethernet interface modules do not perform switching; they act as a traffic pipeline to the switch fabric module. Available GEN interface modules include the 2-port 1000BASE-SX and 1000BASE-LX models. You do not configure the two Gigabit Ethernet ports of the GEN

interface modules directly; you configure them through the switch fabric module.

To create VLANs in the CoreBuilder 9000 environment, you configure these components:

- **Layer 2 and Layer 3 switching modules** — You connect to these individually through the EME (Enterprise Management Engine) and configure the following ports based on your VLAN configuration:
 - **Front-panel ports** — Typically connect external devices to the switching module. The number of front-panel ports varies according to the model of switching module (for example, one model 10/100TX Layer 2 Switching Module offers 20 front-panel ports).
 - **Backplane port** — Connects the switching module to the 24-port Gigabit Ethernet Switch Fabric Module. The Layer 3 switching modules have only one backplane port. Layer 2 switching modules have two backplane ports; you configure the lower-numbered backplane port, which is enabled by default. (The higher-numbered backplane port is available as a trunk port only.) Example: If you are logged into a 20-port Layer 2 interface module via the EME and configure front-panel ports as members of a port-based VLAN that spans modules, you configure port 21 (the lowered-numbered backplane port) as part of the VLAN. When you have multiple VLANs, this module backplane port must be tagged for all but one of the VLANs. (For one VLAN, such as the default VLAN, the backplane port can be untagged, but for the other VLANs, the backplane port must be tagged.)
- **Switch Fabric Module** —The central backplane for the system. To ensure cross-module communication (for example, within VLANs that span modules), you must configure the switch fabric module to include the VLANs that you configure on your switching modules. You configure the switch fabric module's Gigabit Ethernet ports (24 ports in a 16-slot chassis module) in accordance with:
 - The chassis slot placement and VLAN configuration of your individual switching modules (configured through the EME). For a switching module in slot 1, you configure switch fabric module port 1.
 - The chassis slot placement of your GEN interface modules. To create VLANs for these non-local switching modules, you configure their VLANs by configuring the corresponding switch fabric module

ports. For example, to create a VLAN for a GEN interface module that resides in chassis slot 6 (when the switch fabric module is installed in slot 8), you could configure the switch fabric module to create a VLAN on backplane ports 11 and 12.

Features Your CoreBuilder 9000 supports the VLAN features shown in Table 5.

Table 5 VLAN Features

Feature	Layer 2 Modules and Switch Fabric Module	Layer 3 Modules	Description
VLAN mode: allOpen or allClosed	Yes	Yes	On a per-module basis, establishes a less-restrictive VLAN environment (allOpen mode) or a more secure VLAN environment (allClosed mode). The VLAN mode dictates the requirements for the port-, protocol-, and network-based VLANs.
Per-port IEEE 802.1Q tagging	Yes	Yes	On a per-port basis, dictates that transmitted frames are encapsulated and tagged as specified in the IEEE 802.1Q standard and that received frames must be encapsulated and tagged.
Port-based VLANs	Yes	Yes	Determine VLAN membership based solely on the port on which the frame was received. The system provides a special port-based VLAN by default, with all ports of all modules, called the <i>default VLAN</i> and supports <i>static</i> (user-configured) VLAN configuration.
Protocol-based VLANs	No	Yes	Determine VLAN membership based on the port on which the frame was received, as well as the protocol of the frame. You can use the protocol-based VLANs (and applied routing interfaces) to establish routing between VLANs.
Network-based VLANs (IP only)	No	Yes	Determine IP VLAN membership based on the port on which the frame was received, as well as the IP protocol and destination network address of the frame.

Table 5 VLAN Features (continued)

Feature	Layer 2 Modules and Switch Fabric Module	Layer 3 Modules	Description
Ignore STP mode	No	Yes, in allClosed mode	Ignores the blocking Spanning Tree Protocol (STP) mode for the ports of a designated VLAN. (One instance of STP runs on the module, but you can disable it on a per-VLAN basis.) This mode, only available in allClosed mode, is disabled by default. You select (on a per-VLAN basis), which VLANs ignore STP blocked ports. It is typically used for VLANs with router interfaces that ignore the STP state. This mode allows routing over a port that is blocked by STP.

IEEE 802.1Q and Per-port Tagging

IEEE 802.1Q is a standard for VLANs. It aims to:

- Define an architecture to logically partition bridged LANs and provide services to defined user groups, independent of physical location
- Allow interoperability between multivendor equipment.

IEEE 802.1Q defines the bridging rules for VLANs (ingress and egress rules). It also specifies a tag format that embeds explicit VLAN membership information within each frame in a 12-bit VLAN ID (VID), providing 4094 possible VLANs. IEEE 802.1D, which now incorporates 802.1p, uses this same frame format but takes advantage of an additional 3 bits to specify the priority levels used for Class of Service differentiation.

The system supports per-port tagging (that is, you can select IEEE 802.1Q tagging or no tagging on a per-port basis). Tagging and non-tagging ports can coexist in the same VLAN group.

- **Non-tagging mode** — The default tagging mode. Use this tagging mode for front-panel ports if the environment includes end stations that do not support 802.1Q VLANs. Non-tagged VLAN ports accept tagged frames; however, any traffic transmitted from an untagged port on a VLAN is untagged.
- **802.1Q tagging mode** — With this form of tagging, VLAN frames are encapsulated and tagged as specified in the IEEE 802.1Q standard. In frame tagging mode, an explicit header that identifies to which VLAN the frame belongs is inserted into each frame of interswitch data. Frames in the same VLAN can be tagged or untagged. An untagged port in a VLAN cannot insert a tag, but it can recognize a tagged frame. Use this mode for VLANs in an IEEE 802.1Q environment.

You must evaluate tagging for each switching module's front-panel ports and backplane ports as well as the switch fabric module ports:

- For front-panel ports, you must use tagging when you have ports shared by different VLANs (VLANs that overlap on ports) and there is no other distinguishing characteristic. For port-based VLANs, tagging must be used to distinguish the shared ports (only *one* VLAN's shared front-panel ports can be untagged; in all other VLANs, the shared ports must be tagged). For VLANs on Layer 3 interface modules, tagging is required to differentiate between shared ports of the same protocol type and overlapped IP Layer 3 VLANs in allClosed mode.

- For backplane ports and switch fabric module ports, you must use tagging when these ports are shared by multiple VLANs. (Only *one* VLAN's backplane ports can be untagged; in all other VLANs defined across the backplane, the backplane ports must be tagged.) If you tag the backplane port of a switching module for a VLAN, you must also tag the corresponding switch fabric module port in that VLAN.

Devices (end stations, routers, switches, and so forth) that are connected to an explicitly tagged front-panel port must be capable of supporting 802.1Q tagging. If the front-panel port is untagged in the VLAN to which they belong, however, they do not have to support 802.1Q tagging.

VLAN IDs Each VLAN is identified by its VLAN ID (VID). For the VLANs you create, each module keeps track of its used VLAN ID numbers to help you select the next available VLAN ID. Data frames sent by the module are tagged per IEEE 802.1Q (which contains the VID) if tagging is enabled on the transmit port for that VLAN. Tagged IEEE 802.1Q data frames that are received on the module are assigned to the VLAN that corresponds to the VID contained in the tag. The default VLAN uses a VID of 1.

Before assigning a VID, review the information in Table 6.

Table 6 Assigning ID Numbers to VLANs

VLAN ID Number	Description
VID 0	The null VID. You cannot define or configure VLANs with an ID of 0 on a module.
VID 1	Default VLAN assigned by IEEE and 3Com Corporation
VID 4095	Reserved
VID 2–4094	Numbers that you assign when you create VLANs

Terminology Review the following terms:

- **Default VLAN** — The port-based VLAN interface that is predefined on all Switch Fabric ports and the ports of each switching module without any tagging.
- **Protocol suite** — On Layer 3 modules, refers to the protocol family associated with a protocol-based or network-based VLAN. The protocol suite is *unspecified* for the default VLAN and all port-based VLANs.

- **Layer 3 address** — On Layer 3 modules, the network or subnetwork address that is associated with a network-based IP VLAN.
- **Port membership** — The bridge ports that you assign to be part of the VLAN. If you have created trunks, you must specify the anchor port (lowest-numbered) port in the trunk when you define the VLAN. All bridge ports are initially part of the default VLAN on each module.
- **VLAN name** —The name that you assign to the VLAN. It can contain up to 32 ASCII characters. If the name includes spaces, enclose the name in quotation marks. The default VLAN uses the name Default.
- **Ingress and egress rules** — Ingress rules determine the VLAN to which an incoming frame belongs. If it cannot be assigned to any VLAN, it is assigned to the null VLAN, which contains no ports and has no associated address table in allClosed mode. Egress rules determine whether the frame is forwarded, flooded, or filtered, as well as the tag status of the transmitted frame.

Procedural Guidelines Follow these procedural guidelines to configure VLANs on the modules in your system:

- 1 Use the EME to connect to each Layer 2 and Layer 3 switching module individually and configure the VLAN mode and VLANs for each module.
- 2 On each switching module, select the VLAN mode of allOpen or allClosed.
- 3 On each switching module, create the appropriate number of VLANs for your configuration. For each VLAN definition:
 - a Select a VID for the VLAN and provide information based on the type of VLAN: port-based information for Layer 2 modules; port-based, protocol-based, and network-based information for Layer 3 modules.
 - b Include the appropriate front-panel ports. Tag the front-panel ports if you need to (that is, if the ports overlap with another VLAN and tagging is the only distinguishing characteristic). Remember that if you tag a port, the attached device must support IEEE 802.1Q tagging. If you are configuring a Layer 3 module that serves as a router, your VLAN may or may not include front-panel ports.
 - c Include the backplane port of the switching module in the VLAN definition unless the VLAN traffic is limited to that switching module only and will not pass through the switch fabric module. If the switching module supports two backplane ports (and resides in a slot that supports two switch fabric module ports), you typically configure

the lower-numbered backplane port. (Example: On a 10-port Layer 2 switching module, you configure port 11; on a 12-port Layer 3 module, you configure port 13.) When you have multiple VLANs, tag the backplane port. (In a subsequent step, you must tag the associated switch fabric module backplane port as well.)

- 4 On each Layer 3 switching module with VLANs that you want to perform routing, define a routing interface for each protocol-based or network-based VLAN. Verify that the routing interface is defined to use the same network or subnetwork as any other module that supports the VLAN.
- 5 Use the EME to connect to the switch fabric module and configure all VLANs that will pass traffic through the Layer 2 switch fabric module (that is, VLANs that are associated with switching modules or the GEN interface modules).
 - a For each VLAN definition that is associated with one or more switching modules, include the switch fabric module backplane ports that correspond to the VLAN's participating switching modules. (For example, if the VLAN's participating modules reside in slots 3 and 5, include switch fabric module ports 5 and 9 in the VLAN definition on the switch fabric module.) Tag these switch fabric module ports if the backplane ports of the corresponding switching modules are tagged. (For each VLAN, verify that the tagging type for a switch fabric module port matches its associated backplane switching module port.)

For each VLAN definition for 2-port GEN interface modules, include the switch fabric module backplane ports that correspond to the VLAN's GEN interface modules. (For example, if the VLAN's GEN interface module resides in slot 6, you define switch fabric module ports 11 and 12 to be part of the VLAN.) Tag these ports if the front-panel ports of the GEN interface modules are connected to IEEE 802.1Q enabled devices, such as other CoreBuilder 9000 systems, CoreBuilder 3500 Layer 3 switches, or other 3Com switches.

Device View does not provide a single dialog box, listing all ports on all modules in the chassis, through which you can create a port-based VLAN that spans multiple modules. To do this, you must follow these general steps:

- 1 Access each module that contains ports you want to include in the VLAN.
- 2 Create a VLAN on each individual module and assign the same VLAN ID to each VLAN. Be sure to include the module's backplane port in the VLAN.
- 3 Access the switch fabric module and create a VLAN that includes the backplane ports associated with each module in step 2. Assign the same VLAN ID you created in step 2 to the switch fabric module VLAN.

When you finish, all module front panel ports, module backplane ports, and switch fabric backplane ports should be assigned to a VLAN that has a common VLAN ID.

Selecting VLANs

Device View provides two media selection lists called *Media* and *Sub Group* which help you to choose the VLANs you want to work with, as shown in Figure 7.

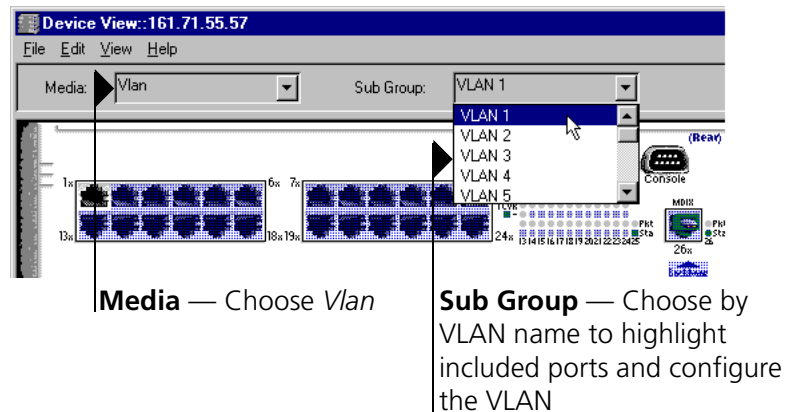


Figure 7 Filtering VLAN Selections

To select VLANs:

- 1 Choose *Vlan* as your selection in the *Media* list box.

When you make your selection, the options in the *Sub Group* list box change to reflect the media selection.

- 2 Choose the VLAN you want to work with in the *Sub Group* list box.

Ports in the VLAN are highlighted.

- 3 View VLAN information about the highlighted ports by clicking the right mouse button, choosing *Configure* from the shortcut menu, and clicking the VLAN tab.

Creating, Editing, or Deleting VLANs

To create, edit, or delete a VLAN:

- 1 Select a switch module.
- 2 Click the right mouse button and choose *Config Module* from the shortcut menu.
- 3 Click the VLAN tab.
- 4 Click the appropriate button: Create, Edit, or Delete.

For detailed instructions, click the Help button in the resulting dialog box and follow the steps in the online Help topic.

For the CoreBuilder 9000 Switch, 3Com strongly recommends that you read the *CoreBuilder 9000 Implementation Guide* for information on VLANs and other features.

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